

**SOUTHWEST FISHERIES SCIENCE CENTER**  
**THIRD QUARTER REPORT-FY 2002**  
For the Period April 1, 2002 - June, 30, 2002

**SUBMITTED BY :** Division Director: John R. Hunter, Fisheries Resources Division

**Title of Accomplishment or Milestone:** Southern California Juvenile Shark Survey.

**Current Status of Accomplishment or Milestone:** The juvenile shark abundance survey, conducted since 1994, provides CPUE trend analysis, abundance indexing, and a series of experiments providing information on reproductive biology, age and growth, movement patterns, and post-release survival.

**Background:** The California/Oregon driftnet fishery catches a significant number of juvenile thresher, mako and blue shark. Recent closures north of Point Conception, California may increase fishing effort south of the Point to the California – Mexican border. These stocks are transboundary with northern Mexico where they have also come under increased commercial fishing pressure. Currently, there are no stock assessments for these species although they will soon be managed under the new west coast fishery management plan. The National Plan of Action for Sharks (NPOA) further requires stock assessments within two years. In support of assessments, indices of relative abundance and changes in size and catch can provide fishery managers with important information on stock condition.

**Purpose of Activity:** Provide fishery-independent data on relative abundance, size of catch, and life history parameters needed to address issues of stock condition.

**Description of Accomplishment (e.g., to the Center, to Management, and to NMFS Strategic Plan Goals) and Significant Results:** The most recent survey (June 14 and July 12, 2001) sampled 49 stations and captured, 196 mako, 6 thresher and 259 blue sharks. Average catch rates of shortfin mako sharks taken in the survey was 0.76 sharks per 100 hook-hours. This is below that of the first three years of the survey (from 0.97 to 1.07) but higher than in 2000 (0.27). In 2001 the catch rate for blue sharks was 1.02. This catch rate is highly variable ranging between 0.84 in 1997 and 5.81 blue shark per 100 hook-hours in 2000. Attempts to sample common thresher shark was compromised by interactions with commercial fishing gear previously deployed in the sampling areas and by low catches in areas not compromised. Size of catch for mako and blue shark declined slightly in 2001 thus continuing a decreasing, though statistically not significant, trend in size of catch.

One hundred and eighty five (185) mako and 6 thresher sharks were tagged and injected with oxytetracycline (OTC) for ongoing age and growth studies. This brings the total number of mako sharks to 249 and thresher sharks to 102 tagged with OTC since 1995. Blood was drawn from 50 mako and 5 thresher sharks for studies on condition at capture and post release survival studies. Blood assay indicate very high catecholamine and lactate levels in all three species when compared to resting, captive sharks. The recapture rate of at least 4% indicates these sharks can tolerate the observed elevated levels. A 20-minute video of the shark survey operations and techniques was made to document survey operations and techniques that could be

used in education and outreach programs.

**Significance of Accomplishment:** This survey provides the only fishery-independent estimate of juvenile pelagic shark abundance off the West Coast. It further accomplishes recommendations in both the International- and National Plan of Action for Sharks (IPOA and NPOA). Results to date indicate some declines in cpue and size of catch. Concurrent studies are providing valuable information on the life histories and efficacy of these populations.

**Problems:** None

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